

38088S1

## CLAIMS

1. Apparatus for customer service, comprising:  
at least one wireless communication terminal, adapted to be deployed at a first location in a facility that is visited by customers, so as to receive digital data over a wireless link from a portable device carried by at least one of the customers in a vicinity of the terminal; and  
a service center, at a second location, which is not in the vicinity of the at least one wireless communication terminal, and in communication with the terminal so as to receive the digital data therefrom and to generate a permanent record of the data for delivery to the at least one of the customers.
2. Apparatus according to claim 1, wherein the digital data comprise one or more digital images.
3. Apparatus according to claim 2, wherein the portable device comprises a digital camera.
4. Apparatus according to claim 2, wherein the permanent record comprises a hard copy of one or more of the images.
5. Apparatus according to claim 1, wherein the facility comprises a commercial establishment, and wherein the first location is in a shopping area of the establishment, while the second location is near an exit from the establishment.
6. Apparatus according to claim 1, wherein the wireless link belongs to a wireless local area network deployed in the facility.

38088S1

7. Apparatus according to claim 1, wherein the wireless communication terminal is adapted to receive the data at a rate substantially in excess of 11 Mbps.

8. Apparatus according to claim 7, wherein the wireless communication terminal is further adapted to transmit and receive at a rate of 11 Mbps or less substantially in accordance with IEEE standard 802.11, and to receive the data at the rate substantially in excess of 11 Mbps when requested to do so by the portable device.

9. Apparatus according to claim 8, wherein the wireless communication terminal is adapted to receive the data at a symbol rate substantially equal to 11 million symbols per second.

10. Apparatus according to claim 7, wherein the communication between the wireless communication terminal and the service center takes place at a rate of 11 Mbps or less.

11. A method for customer service, comprising:

receiving digital data at a first location in a facility over a wireless link from a portable device carried by a customer in a vicinity of the first location;

transferring the digital data to a second location in the facility, which is not in the vicinity of the first location;

generating a permanent record of the data at the second location; and

delivering the permanent record to the customer.

12. A method according to claim 11, wherein the digital data comprise one or more digital images.

38088S1

13. A method according to claim 12, wherein the portable device comprises a digital camera.
14. A method according to claim 12, wherein the permanent record comprises a hard copy of one or more of the images.
15. Apparatus according to claim 11, wherein the facility comprises a commercial establishment, and wherein receiving the digital data comprises receiving the data while the customer is shopping in the establishment, and delivering the permanent record comprises delivering the record as the customer is about to exit from the establishment.
16. A method according to claim 11, wherein receiving the digital data comprises receiving the data on a wireless local area network deployed in the facility.
17. A method according to claim 11, wherein receiving the digital data comprises receiving the data at a rate substantially in excess of 11 Mbps.
18. A method according to claim 17, wherein transferring the data comprises transmitting the data at a rate of 11 Mbps or less substantially in accordance with IEEE standard 802.11.
19. A method according to claim 18, wherein receiving the data comprises receiving the data at the rate substantially in excess of 11 Mbps responsive to a request issued by the portable device to receive the data at the rate substantially in excess of 11 Mbps.
20. A method according to claim 18, wherein receiving the digital data comprises receiving the data at a symbol

38088S1

rate substantially equal to 11 million symbols per second.

21. A high-speed transmitter for digital data having a variable data rate, the transmitter comprising:

a convolutional encoder, adapted to generate, for each group of  $k$  input bits in the bitstream,  $n$  coded output bits, such that  $k$  and  $n$  are integers,  $n$  equal to or greater than  $k$ , and at least one of  $k$  and  $n$  is variable responsive to the variable data rate of the transmitter; and

a modulator, coupled to map the output bits generated by the encoder to a constellation of  $M$  symbols for transmission by the transmitter,  $M$  an integer, which is variable responsive to the variable data rate of the transmitter.

22. A transmitter according to claim 21, wherein for a given rate  $R_s$  of transmission of the symbols by the transmitter, the variable data rate  $R_b$  is given by  $R_b = R_s * \log_2(M) * R_c$ , wherein  $R_c$  is a code rate equal to  $k/n$ .

23. A transmitter according to claim 22, wherein the rate of transmission of the symbols is substantially fixed at a standard rate.

24. A transmitter according to claim 23, wherein the standard rate is substantially equal to 11 million symbols per second.

25. A transmitter according to claim 21, wherein the constellation comprises a phase-shift-keyed constellation of order  $M$ .

38088S1

26. A transmitter according to claim 25, wherein after mapping the output bits to the symbols, the modulator is adapted to rotate a phase of the symbols in accordance with a pseudo-random cover function.

27. A transmitter according to claim 21, wherein the encoder comprises a sequence of delay stages coupled to receive the input bits in a serial stream, and a plurality of adders, which are coupled to receive the input bits from the delay stages and to add the input bits together so as to generate at least two of the coded output bits in parallel.

28. A transmitter according to claim 27, wherein the modulator is configured to select the coded output bits from the encoder to be mapped to each of the symbols responsive to the variable data rate.

29. A method for variable-rate, high-speed transmission of digital data, comprising:

specifying a first bit rate at which the data are to be transmitted by a transmitter;

applying convolutional encoding to the data so as to generate, for each group of  $k$  input bits in the bitstream,  $n$  coded output bits, such that  $k$  and  $n$  are integers,  $n$  equal to or greater than  $k$ ;

modulating the output bits to generate a constellation of  $M$  symbols,  $M$  a variable integer, for transmission of the modulated data at a given symbol rate and at the first bit rate;

specifying a second bit rate at which the data are to be transmitted, different from the first bit rate; and

changing a value of at least one of  $k$ ,  $n$  and  $M$ , so that after applying the convolutional encoding and

38068S1

modulating the output bits using the changed value, the transmitter transmits the modulated data at the given symbol rate and at the second bit rate.

30. A method according to claim 29, wherein for the given symbol rate  $R_s$ , changing the value of at least one of  $k$ ,  $n$  and  $M$  comprises changing the value so that the second bit rate  $R_b$  is given by  $R_b = R_s * \log_2(M) * R_c$ , wherein  $R_c$  is a code rate equal to  $k/n$ .

31. A method according to claim 30, wherein the symbol rate is substantially equal to 11 million symbols per second.

32. A method according to claim 29, wherein modulating the output bits comprises applying phase shift keying of order  $M$  to generate the symbols.

33. A method according to claim 32, and comprising rotating a phase of the symbols in accordance with a pseudo-random cover function.

34. A method according to claim 29, wherein applying the convolutional encoding comprises passing the input bits in a serial stream through a sequence of delay stages, and adding the input bits from the delay stages together so as to generate at least two of the coded output bits in parallel.

35. A method according to claim 34, wherein modulating the output bits comprises selecting the coded output bits to be mapped to each of the symbols responsive to the variable data rate.